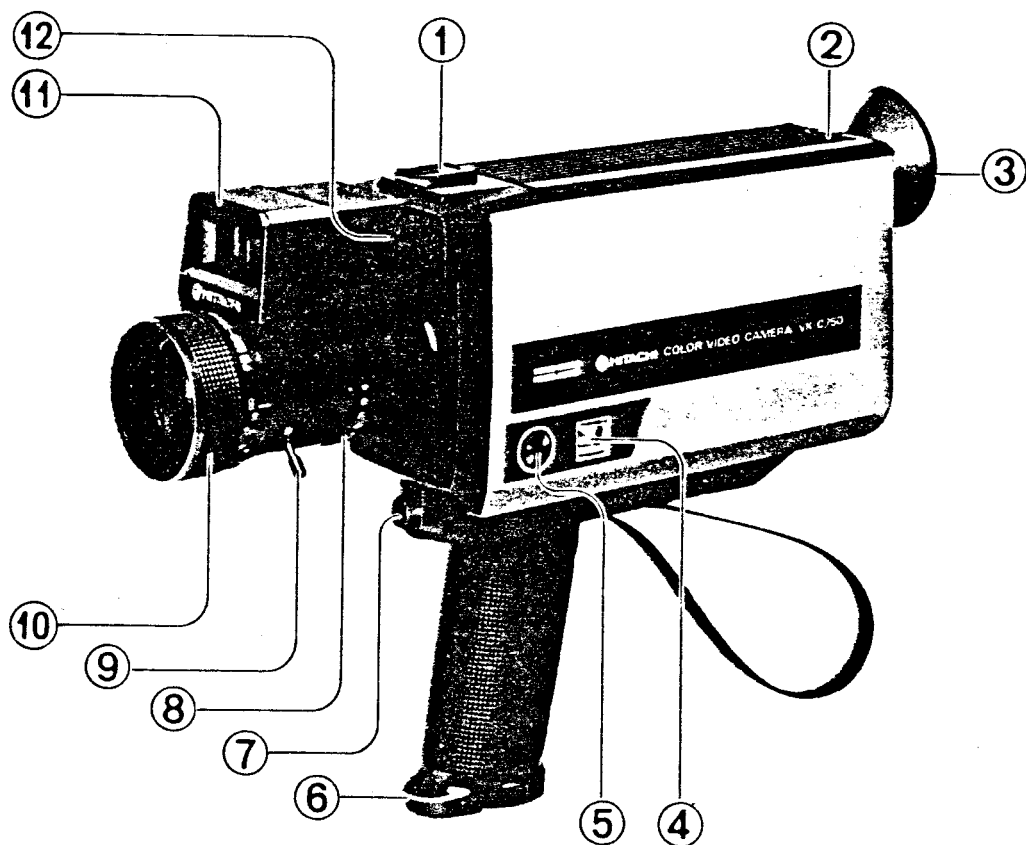




SERVICE MANUAL

No.1312-1



KEY TO ILLUSTRATION

- | | |
|--------------------------|----------------------------------|
| ①. Adaptor shoe | ⑦. Remote Pause Switch |
| ②. Diopter control | ⑧. Aperture Opening Ring |
| ③. Eye Cup | ⑨. Zooming Lever |
| ④. White Balance Meter | ⑩. Focusing Ring |
| ⑤. White Balance Control | ⑪. Optical Viewfinder |
| ⑥. Hand Crip | ⑫. Electret condenser Microphone |

COLOR VIDEO CAMERA

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SPECIFICATIONS

Camera Tube.....	Tri-Electrode 2/3 inch vidicon
Color System.....	NTSC
Scanning Lines.....	525 lines 2 : 1 interlace
Video Output.....	1 Vp-p 75 ohms (unbalanced)
Video S/N Ratio.....	More than 45 dB
Minimum Required Illumination.....	100 lux
Inner Microphone.....	Unidirectional electret condenser type
External Microphone Input.....	- 65 dB high impedance
Audio Line Output.....	- 20 dB low impedance
White Balance Adjustment.....	Manual adjustment. From incandescent lamp to cloudiness
Automatic Sensitivity Control.....	100-100,000 lux
Viewfinder.....	Optical Viewfinder
Indication Function.....	Low light, VTR run, Battery empty
Lens Aperture.....	F 2.1
Focal length.....	13.5 ~ 37.8 mm
Zoom Ratio.....	2.8X
Minimum Focusing Distance.....	1.2 meter
Filter Thread Diameter.....	52 mm, 0.75 mm pitch
Power Supply.....	DC 12V (Supply from A-C70A)
Power Consumption.....	5.8W
Dimensions.....	7.8 (W) × 24.1 (H) × 34.7 (D) cm (3-1/16" × 9-1/2" × 13-11/16")
Weight.....	1.8 kg (3 lbs. 16 oz.)

POWER UNIT (A-C70A)

Power Supply.....	AC 120V, 60 Hz
Power Consumption.....	25W
Output.....	DC 13.5V, 900 mA
Dimensions.....	9.4 (W) × 7.9 (H) × 14.6 (D) cm 3-11/16" × 3-1/8" × 5-3/4"
Weight.....	1.3 kg (2 lbs. 15 oz.)

DISASSEMBLY

1. Side cover

① 4 screws

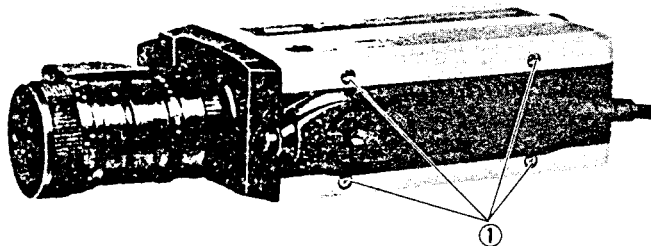


Fig. 1

2. Viewfinder

② 2 screws

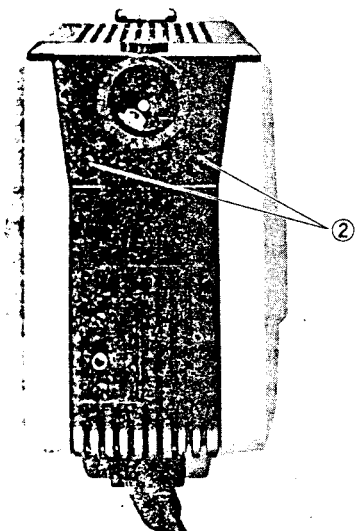


Fig. 2

Detach the master viewfinder with the side cover removed.

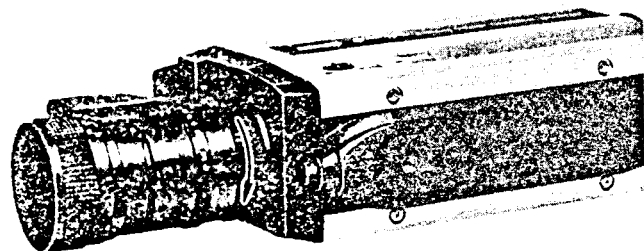
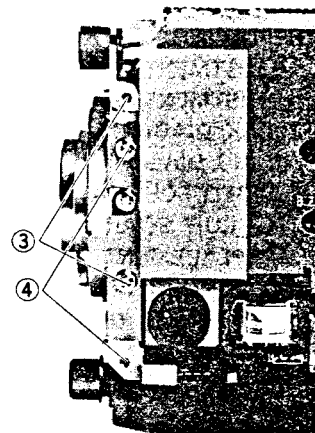
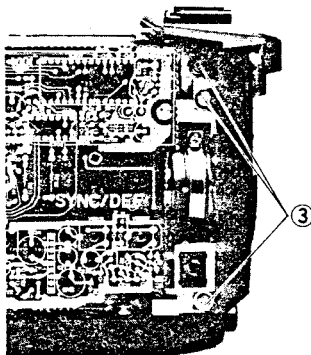


Fig. 3

4. Front cover/shield plate

③ 5 screws

④ 2 screws



(Including screws on both sides)

Fig. 4

5. Video P.C.B

⑤ 2 screws

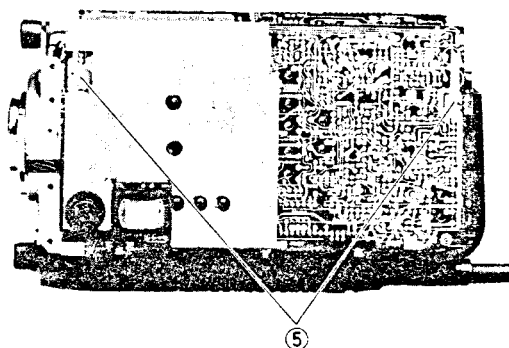


Fig. 5

6. Sync/Encoder P.C.B

⑥ 2 screws

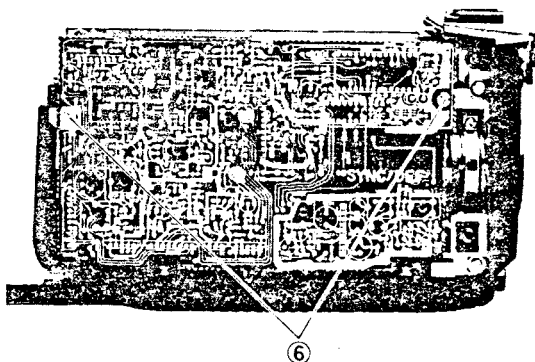


Fig. 6

REPLACING THE VIDICON

1. Remove the mount (3 screws)
2. Remove the shield plate (2 screws)
3. Remove the built-in microphone

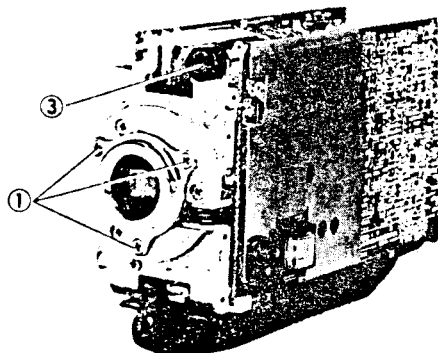


Fig. 7

4. Remove the video PC Board, and then remove the target connector.

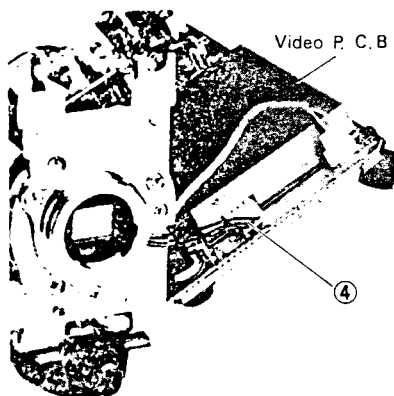


Fig. 8

5. Remove the Sync PC Board

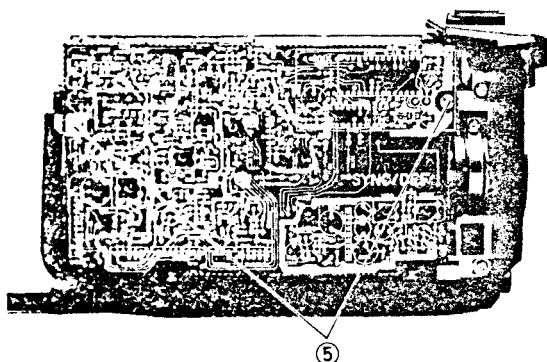


Fig. 9

6. Remove the Filter PC Board, loosen the vidicon retaining screw and take out the vidicon.

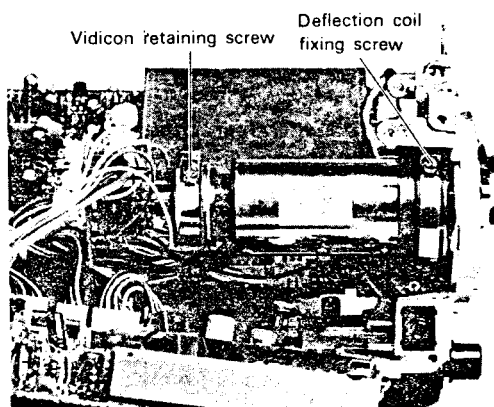


Fig. 10.

7. Insert the new vidicon with its target terminals down.

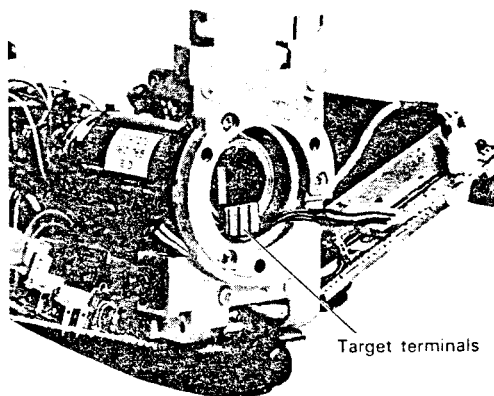


Fig. 11

8. Lightly tighten the vidicon clamp screw after checking that the vidicon is inserted fully (do not tighten the screw firmly but tighten it so that the vidicon can be moved backward and forward).
9. Insert the Filter PC Board being careful not to bend the vidicon pin.
10. Mount the other components by reversing the procedure in items 1 ~ 5.
11. Adjust the unit according to "Adjustment after replacing the vidicon" after installing the lens.

Note: Wear clean gloves when installing the vidicon so that no finger marks or dust adhere to the photoconductive surface or tube wall. When finger marks or dust are present, the picture quality deteriorates. Remove them using chamois leather, lens cleaning tissue etc.

ADJUSTMENT AFTER THE VIDICON IS REPLACED

1. Adjusting the beam voltage.

VR206 (BEAM): Sync/Encoder PC Board

Turn this in the direction in which the picture disappears, and then turn it back so the picture appears gradually. Point the camera at a fluorescent lamp 4 ~ 5m away and move the camera lens to the left and right (up and down) and turn VR206 to the position where bright parts of the image does not trail too much. Do this with maximum lens aperture.

Note: Be sure not to point the camera at the sun.

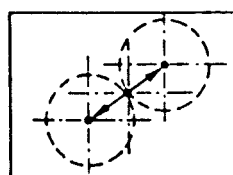
2. Magnetic field focus

VR205 (FOCUS): Sync/Encoder PC Board

Adjust VR205 for the best picture.

Adjust 2 magnet rings at the back of the coil ass'y so that the center of the picture does not move but only its edges move when VR205 is turned.

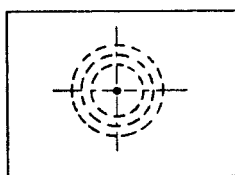
Adjustment of
alignment faulty



Center of
the picture moves

Fig. 12

Adjustment of
alignment complete



Center of the picture
does not move

Fig. 13

Adjusting the Back-focus/Vidicon black mask

3-1. Back-focus

Loosen the vidicon fixing screw, open the lens and match the focus scale of the lens to ∞ and point the camera at an object more than 30m away.

Move the vidicon forward and backward to obtain the clearest picture.

3-2. Vidicon black mask

- 1) Turn VR204 (H. CENT) so the black mask appears in the picture.
- 2) Turn the vidicon to adjust it so that the vidicon mask is in parallel with the vertical direction in the monitor picture. Tighten the vidicon retaining and screw after adjustment.

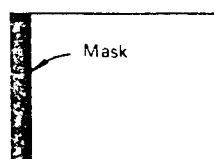


Fig. 14

4. Adjusting the Picture size/center.

4-1. Setting the picture frame

- 1) Prepare a chart (paper) with the size ratio as shown in Fig. 15.

Background is black.

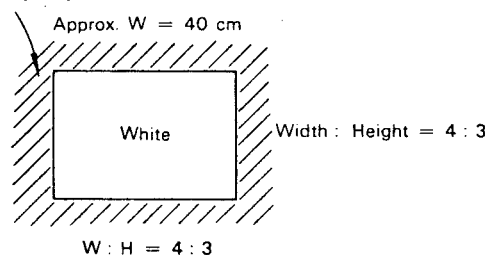


Fig. 15

- 2) Place this chart correctly in front of the camera. Adjust the lens focus.
- 3) Decrease the size of the picture using VL202 (WIDTH) and VR201 (HEIGHT) so that parts of a black circle appear in all 4 corners.
- 4) Change the zoom ratio of the lens and camera position, and set so that the left side of the chart keeps contact with the optical black and 4 corners have parts of the black circle as shown in Fig. 16.

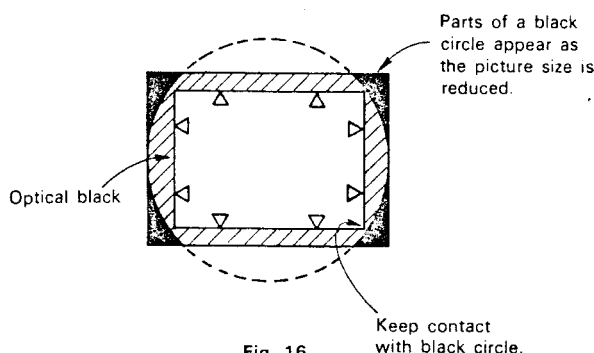


Fig. 16

- 5) Check the output using a synchroscope while keeping the above condition, and then proceed to the next adjustment.

4-2. Adjusting horizontal/vertical size (while maintaining the condition described in Item 4-1-(4)).

- 1) Adjusting Horizontal scan/position (using a synchroscope) VL202 (WIDTH), VR202 (H. CENT).

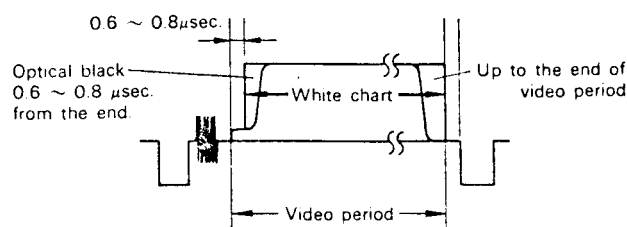


Fig. 17

Adjust VL202 (WIDTH) and VR204 (H. CENT) so that the optical black interval $0.6 \sim 0.8 \mu\text{sec.}$ and the white section of the chart remains completely on the right during the video period as shown in Fig. 17.

2) Adjusting vertical scan/position

Adjust VR201 (HEIGHT) and VR202 (V. CENT) so that the chart fills the video period as shown in Fig. 18.

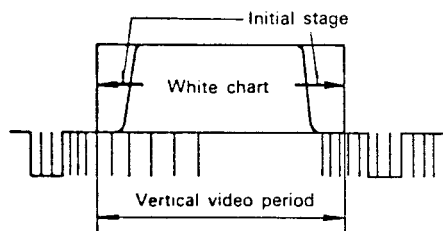


Fig. 18

5. Horizontality of vidicon

Loosen the deflection coil fixing screw to adjust so that the picture is horizontal when both the camera and object are horizontal. Be sure to tighten the screw after adjustment is complete.

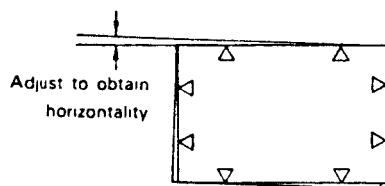


Fig. 19

6. Adjusting black balance

VR104 (G. SET-UP), VR106 (R. SET-UP), VR108 (B. SET-UP) Sensitivity switch: Standard

- 1) Receive the grey scale chart.
- 2) Connect an oscilloscope to the video output terminal (CN205 ⑥).
- 3) Adjust the aperture of the lens to make the video waveform in Fig. 20 1.0 Vp-p .
- 4) Adjust VR104, VR106, VR108 to set (A) (carrier leak) in Fig. 20 to minimum, and (B) (set-up) to $75 \text{ mV} \pm 25 \text{ mV}$.

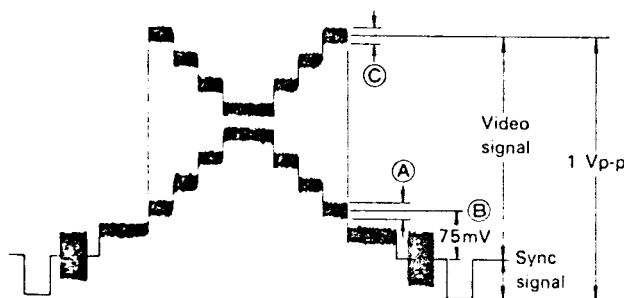


Fig. 20

7. Adjusting the pulse canceller

(black balance when selecting the sensitivity switch)

VR109 (G. PC), VR110 (R. PC), VR111 (B. PC)

Sensitivity switch: High, Aperture: F 1.6

Amplitude of the video signal component in Fig. 26 is to be approx. 0.2 Vp-p .

- 1) Point at the grey scale chart.
- 2) Connect an oscilloscope to the video output terminal (CN205 ⑥).
- 3) Adjust VR110, VR111 with VR109 fixed, to minimize ③ shown in Fig. 20.
- 4) When A in Fig. 20 is more than 100 mVp-p with the sensitivity switch set to "STANDARD", adjust black/white balance and pulse canceller again.

8. Adjusting white balance

VR102 (R. GAIN), VR103 (B. GAIN)

Sensitivity switch: Standard, Aperture: F 2.8

- 1) Point at the grey scale chart.
- 2) Turn VR101 (white balance) to the position in Fig. 25.
- 3) Connect an oscilloscope to the video output terminal (CN205 ⑥).
- 4) Adjust VR102, VR103 to minimize ③ (carrier leakage) in Fig. 20.

9. Crosstalk balance

VR105 (Rch IMP), VR107 (Bch IMP): Video PC Board

Sensitivity switch: Standard, Aperture: F 4

Minimize color leakage before and after the grey scale in the monitor picture.

(Or set the video output level passing through the BPF ($3.5 \text{ MHz} \pm 0.5 \text{ MHz}$) to less than 150 mVp-p .)

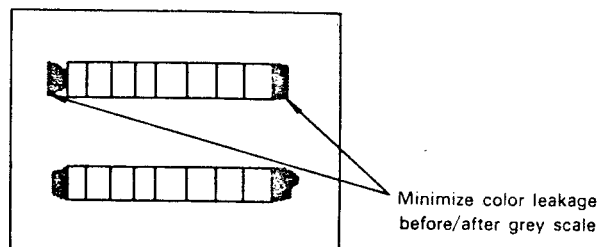


Fig. 21

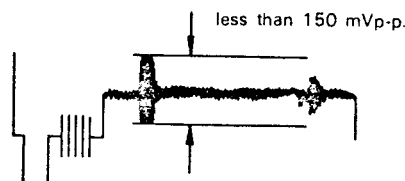


Fig. 22

* Repeat Items 6, 8, 9.

10. Adjusting dark current of vidicon

VR112 (ID), VR209 (V. LIN)

Aperture: CLOSE (C)

- 1) Connect an oscilloscope to TP4.
- 2) Adjust VR112 to set the waveform in Fig. 23 to 79 mV.
- 3) When there is over-shoots as shown in Fig. 24, fine adjust VR209 to make it flat as shown in Fig. 23.

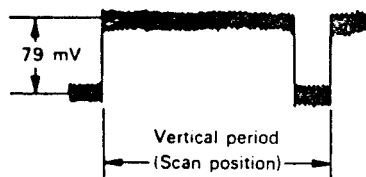


Fig. 23

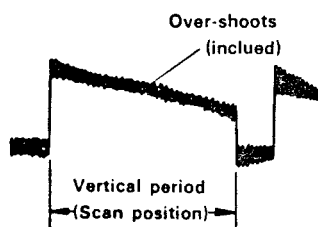


Fig. 24

Note: After dark current is adjusted, adjust VR101 (white balance) to the position shown in Fig. 25.

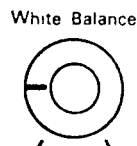


Fig. 25

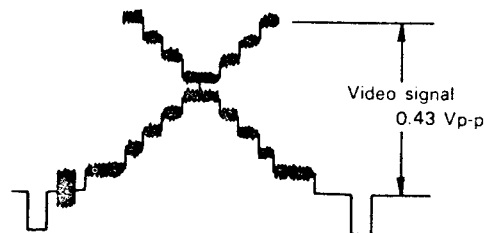


Fig. 26

Checking black balance/white balance

Sensitivity switch: Standard, Aperture: F 2.8

- 1) Point at the grey scale chart.
- 2) Connect an oscilloscope to the video output terminal (CN205 ⑥).
- 3) ③ in Fig. 20 should be less than 80 mVp-p, and ④, less than 50 mVp-p. When this specification is not satisfied, adjust the black balance and white balance again.

11. Adjusting AGC

VR113 (AGC)

Sensitivity switch: High

- 1) Point at the grey scale chart.
- 2) Connect an oscilloscope to video output terminal (CN205 ⑥).
- 3) Adjust the aperture of the lens to set the amplitude of the video signal component in Fig. 26 to 0.43 Vp-p.
- 4) Adjust VR113 so that the indicator "L" just lights after going out.
- 5) Checking after adjustment
 1. Check that when the aperture of the lens is changed, the indicator "L" goes out with the amplitude of the video signal component set to more than 0.5 Vp-p (approx.), and lights at less than 0.3 Vp-p. (Sensitivity switch: "Hi", "Standard")
 2. Check that the amplitude of the video signal component is approx. 0.7 Vp-p when the sensitivity switch is set to "Hi" and aperture to F 2.8.

ADJUSTMENT OF CIRCUITS

Sync/Encoder PC Board

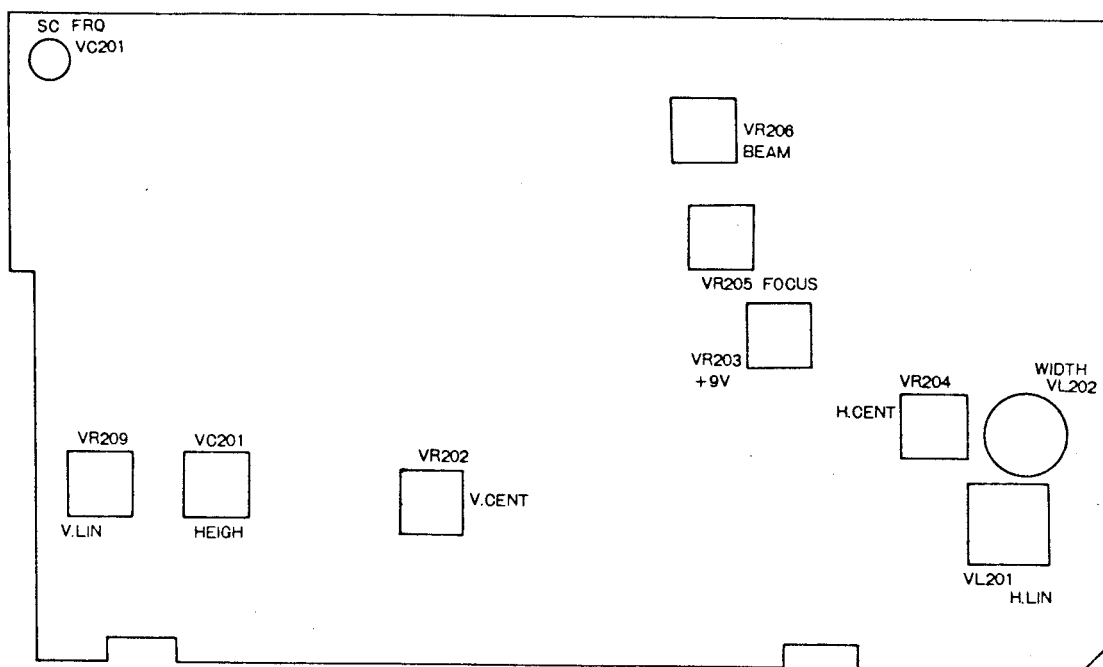


Fig. 27 Sync/Encoder PC Board (parts side)

1. Adjusting power voltage

VR203 (9V)

Adjust VR203 (9V) to obtain 9V at RP-4.

2. Adjusting the sub. carrier.

VC201 (SC FRQ)

Adjust VC201 (SC FRQ) to obtain a frequency of 3.579545 MHz at TP-11.

3. Adjusting the Picture size/center

3-1. Setting the picture frame

- 1) Prepare a chart (paper) with the size ratio as shown in Fig. 28.

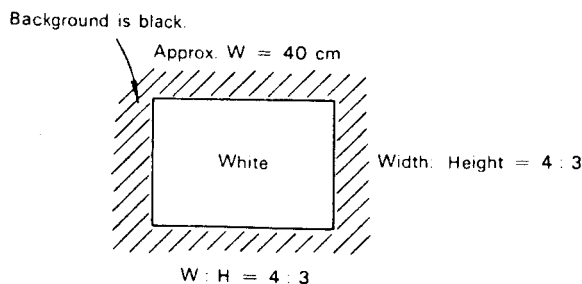
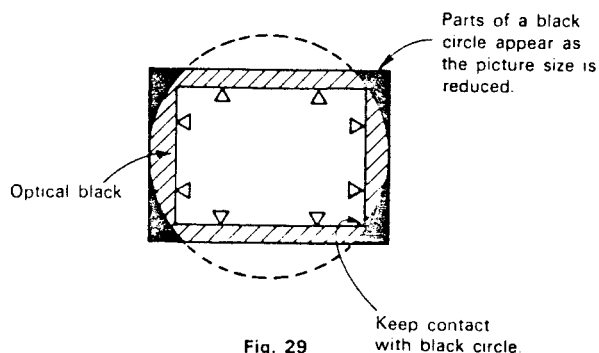


Fig. 28

- 2) Place this chart correctly in front of the camera. Adjust the lens focus.
- 3) Decrease the size of the picture using VL202 (Width) and VR201 (HEIGHT) so that parts of a black circle appear in all 4 corners.
- 4) Change the zoom ratio of the lens and camera position, and set so that the left side of the chart keeps contact with the optical black and 4 corners have parts of the black circle as shown in Fig. 29.



- 5) Check the output using a synchroscope while keeping the above condition, and then proceed to the next adjustment.

3-2. Adjusting horizontal/vertical size (while maintaining the condition described in Item 4-1-(4))

- 1) Adjusting Horizontal scan/position (using a synchroscope) VL202 (WIDTH) VR202 (H. CENT).

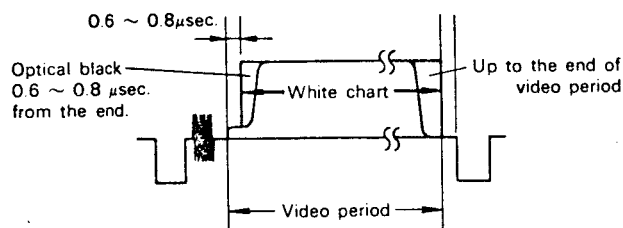


Fig. 30

Adjust VL202 (WIDTH) and VR204 (H. CENT) so that the optical black interval $0.6 \sim 0.8 \mu\text{sec}$ and the white section of the chart remains completely on the right during the video period as shown in Fig. 30.

2) Adjusting vertical scan/position

Adjust VR201 (HEIGHT) and VR202 (V. CENT) so that the chart fills the video period as shown in Fig. 31.

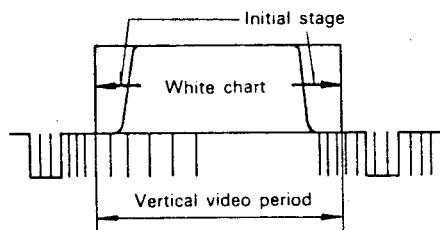


Fig. 31

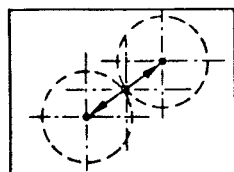
4. Magnetic field focus

VR205 (FOCUS): Sync/Encoder PC Board

Adjust VR205 for the best picture.

Adjust 2 magnet rings at the back of the coil ass'y so that the center of the picture does not move but only its edges move when VR205 is turned.

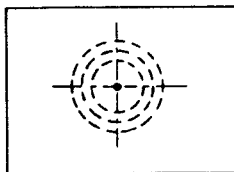
Adjustment of
alignment faulty



Center of
the picture moves

Fig. 32

Adjustment of
alignment complete



Center of the picture does
not move

Fig. 33

5. Adjusting the beam voltage

VR206 (BEAM): Sync/Encoder PC Board

Turn this in the direction in which the picture disappears, and then turn it back so the picture appears gradually.

Point the camera at a fluorescent lamp 4 ~ 5m away and move the camera lens to the left and right (up and down) and turn VR206 to the position where bright parts of the image does not trail too much. Do this with maximum lens aperture.

Note: Be sure not to point the camera at the sun.

Video PC Board

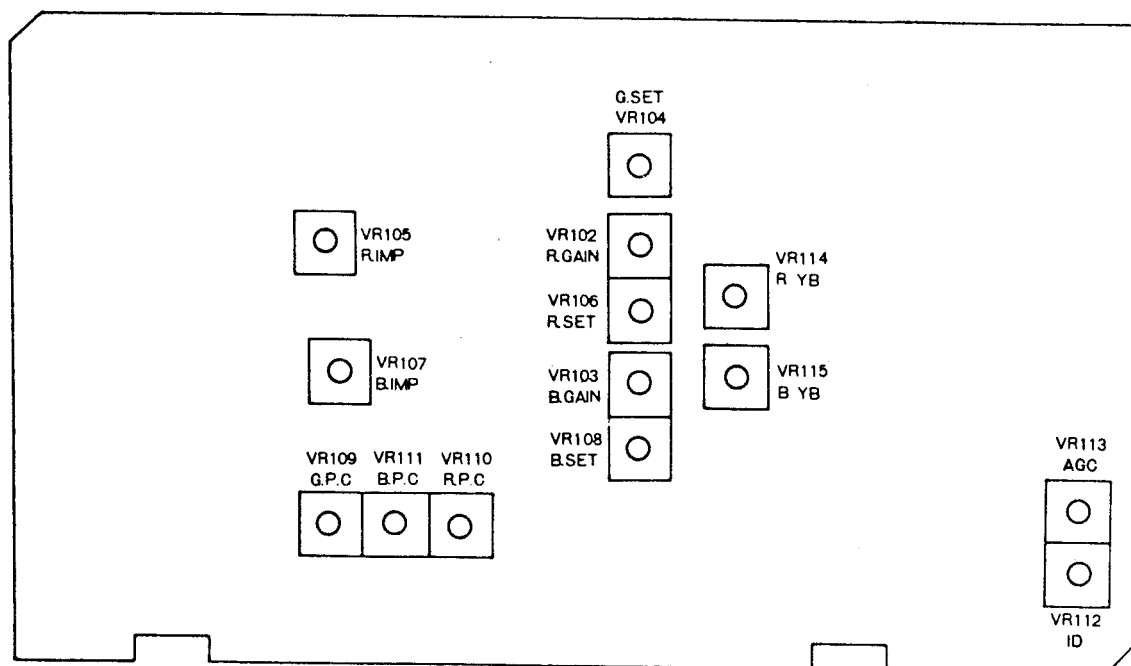


Fig. 34. Video PC Board. (parts side)

1. Adjusting black balance

VR104 (G. SET-UP), VR106 (R. SET-UP), VR108 (B. SET-UP)

Sensitivity switch: Standard

- 1) Receive the grey scale chart.
- 2) Connect an oscilloscope to the video output terminal (CN205 ⑥).
- 3) Adjust the aperture of the lens to make the video waveform in Fig. 20 1.0 Vp-p.
- 4) Adjust VR104, VR106, VR108 to set ① (carrier leak) in Fig. 35 to minimum, and ② (set-up) to $75 \text{ mV} \pm 25 \text{ mV}$.

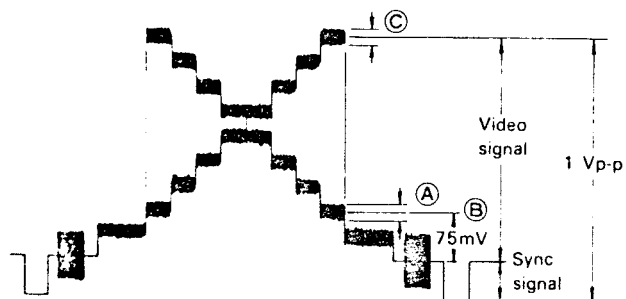


Fig. 35

2. Adjusting the pulse canceller.

(black balance when selecting the sensitivity switch)

VR109 (G. PC), VR110 (R. PC), VR111 (B. PC)

Sensitivity switch: High, Aperture: F 1.6

Amplitude of the video signal component in Fig. 26 is to be approx. 0.2 Vp-p.

- 1) Point at the grey scale chart.
- 2) Connect an oscilloscope to the video output terminal (CN205 ⑥).

- 3) Adjust VR110, VR111 with VR109 fixed, to minimize ③ shown in Fig. 35.

- 4) When ① in Fig. 35 is more than 100 mVp-p with the sensitivity switch set to "STANDARD", adjust black/white balance and pulse canceller again.

3. Adjusting white balance

VR102 (R. GAIN), VR103 (B. GAIN)

Sensitivity switch: Standard, Aperture: F 2.8

- 1) Point at the grey scale chart.
- 2) Turn VR101 (white balance) to the position in Fig. 39
- 3) Connect an oscilloscope to the video output terminal (CN205 ⑥).
- 4) Adjust VR102, VR103 to minimize ③ (carrier leakage) in Fig. 35.

4. Crosstalk balance

VR105 (Rch IMP), VR107 (Bch IMP): Video PC Board

Sensitivity switch: Standard, Aperture: F 4

Minimize color leakage before and after the grey scale in the monitor picture.

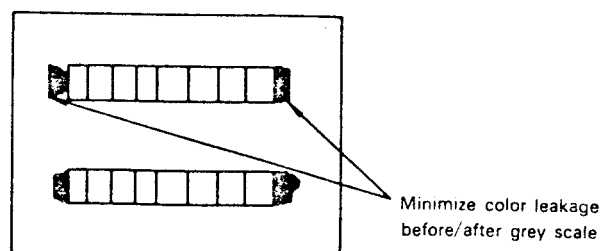


Fig. 36

5. Adjusting dark current of vidicon

VR112 (ID), VR209 (V. LIN)

Aperture: CLOSE (C)

- 1) Connect an oscilloscope to TP4.
- 2) Adjust VR112 to set the waveform in Fig. 37 to 79 mV.
- 3) When there is over-shoots as shown in Fig. 38, fine adjust VR209 to make it flat as shown in Fig. 37.

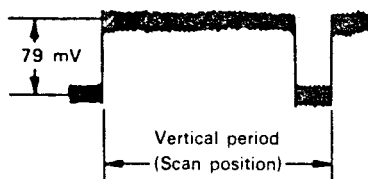


Fig. 37

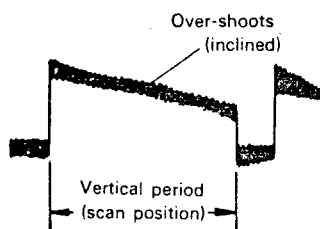


Fig. 38

Note: After dark current is adjusted, adjust VR101 (white balance) to the position shown in Fig. 39.



Fig. 39

6. Adjusting AGC

VR113 (AGC)

Sensitivity switch: High

- 1) Point at the grey scale chart.
- 2) Connect an oscilloscope to video output terminal (CN205 ⑥).
- 3) Adjust the aperture of the lens to set the amplitude of the video signal component in Fig. 26 to 0.43 Vp-p.
- 4) Adjust VR113 so that the indicator "L" just lights after going out.
- 5) Checking after adjustment
 1. Check that when the aperture of the lens is changed, the indicator "L" goes out with the amplitude of the video signal component set to more than 0.5 Vp-p (approx.), and lights at less than 0.3 Vp-p. (Sensitivity switch: "Hi", "Standard")
 2. Check that the amplitude of the video signal component is approx. 0.7 Vp-p when the sensitivity switch is set to "Hi" and aperture to F 2.8.

7. Adjusting R-Y balance, B-Y balance

VR114 (R.Y.B), VR115 (B.Y.B)

- 1) Point the camera at a fluorescent lamp or bulb 4 ~ 5 mm away (point at a bright object so that white clip is applied to the video output).
- 2) Turn VR114 and VR115 alternately to minimize the carrier white clip level.

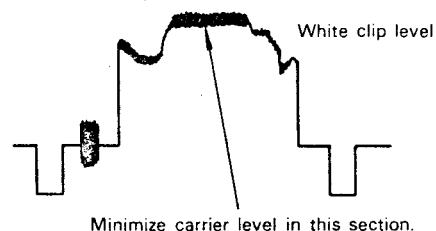
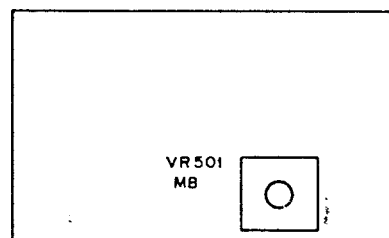


Fig. 40

Sub PC Board



SUB PC Board

Fig. 41

1. Adjusting the meter balance.

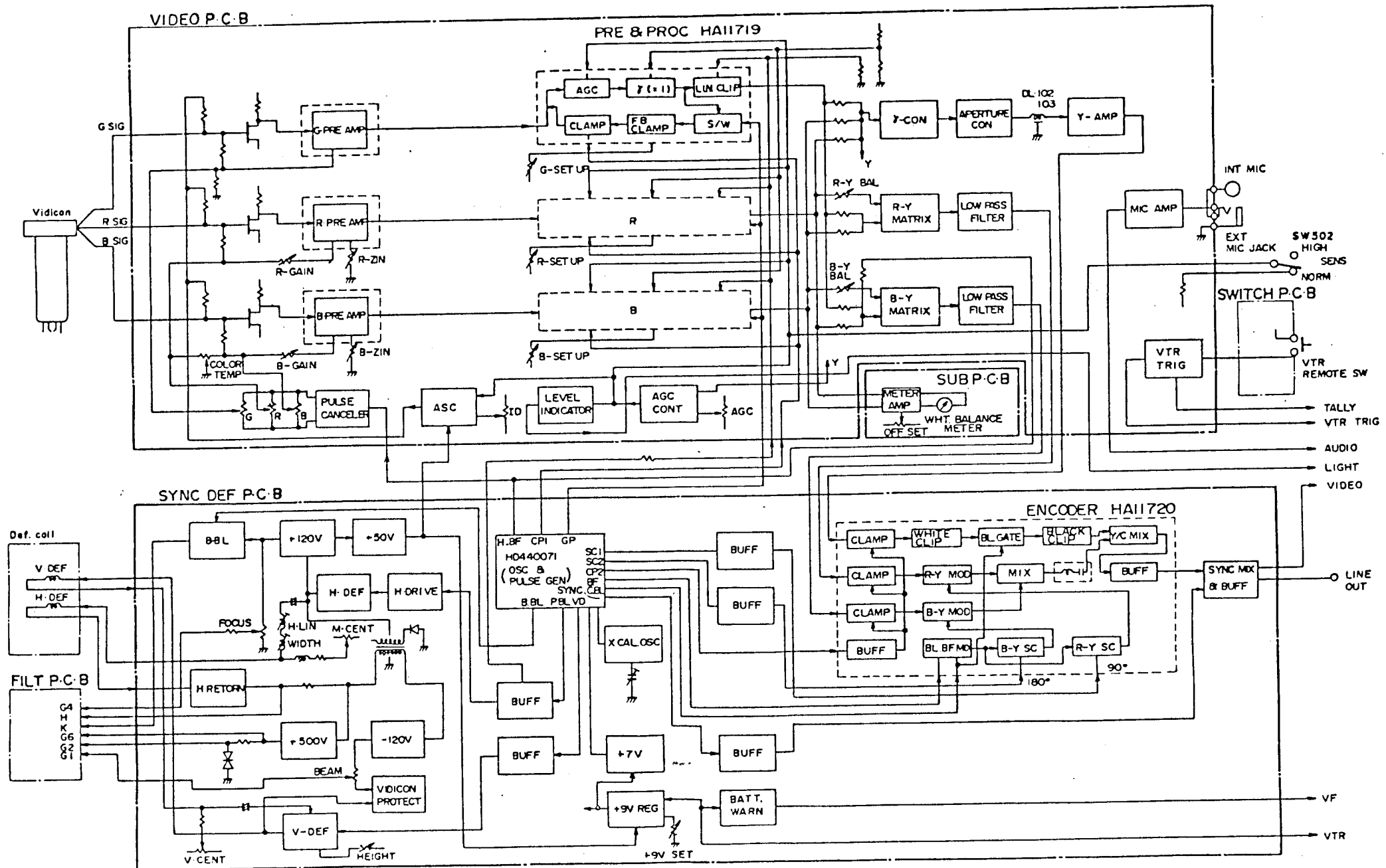
1. Adjusting the meter balance

VR501 (M.B)

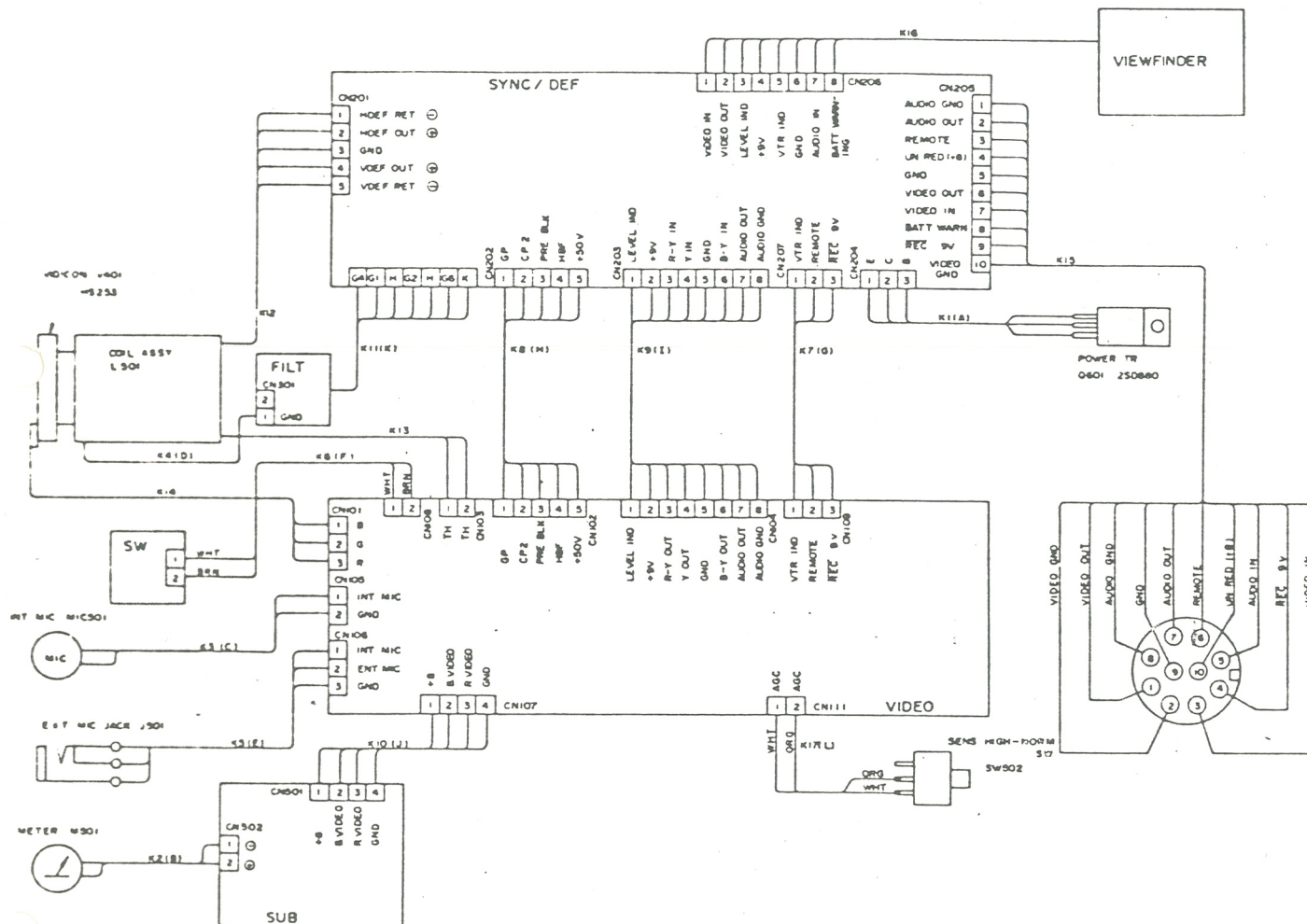
Set the lens to "CLOSE (C)", adjust VR501 so that the pointer of the white balance meter is set to the center.

• Black balance should have been adjusted at this time.

BLOCK DIAGRAM



WIRING DIAGRAM

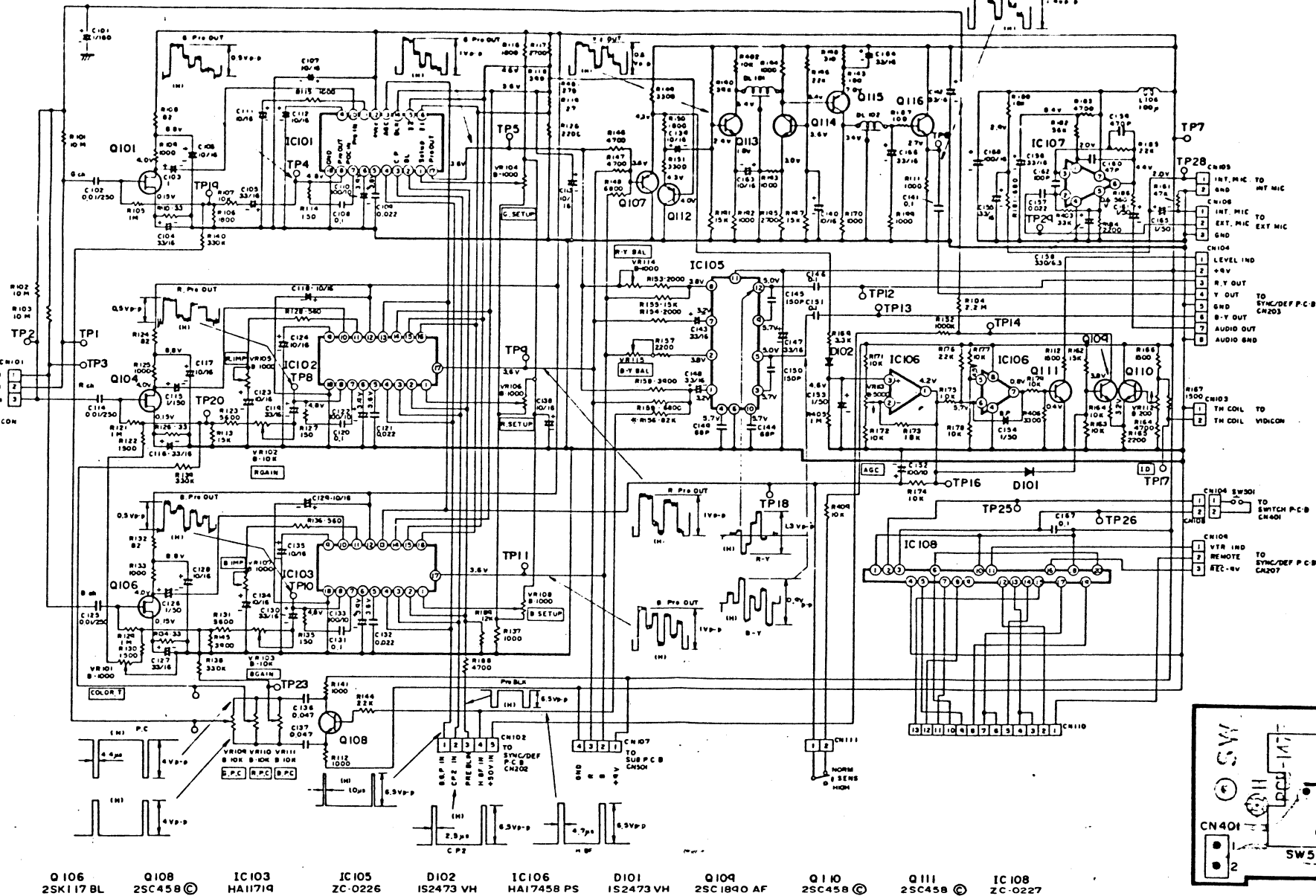


REPLACEMENT PARTS LIST (Video)

SYMBOL-NO	P-NO	DESCRIPTION
RESISTORS		
VR101	5008431	VARIABLE RESISTOR 1KOHM
VR102-103	5008435	VARIABLE RESISTOR 10K OHM
VR104-108	5008436	VARIABLE RESISTOR 1K OHM
VR109-111	5008435	VARIABLE RESISTOR 10K OHM
VR112	5008437	VARIABLE RESISTOR 2K OHM
VR113	5008438	VARIABLE RESISTOR 5K OHM
VR114-115	5008436	VARIABLE RESISTOR 1K OHM
SEMI-CONDUCTORS		
D101-102	5330573	DIODE SILICON 1S2473 300MHZ 300MW
IC101-103	5351681	IC HA11719
IC105	5351682	IC 2C0226
IC106	5351683	IC HA17458PS
IC107	5351684	IC TA7120P
IC108	5351685	IC 2C0227
Q101	5322235	TRANSISTOR 25K117BL
Q104	5322235	TRANSISTOR 25K117BL
Q106	5322235	TRANSISTOR 25K117BL
Q107	5322248	TRANSISTOR 2SA1015Y
Q108	5320023	TRANSISTOR SILICON 2SC458LGC
SEMI-CONDUCTORS		
Q109	5322234	TRANSISTOR 2SC1890A-F
Q110-111	5320023	TRANSISTOR SILICON 2SC458LGC
Q112	5322248	TRANSISTOR 2SA1015Y
Q113-114	5320023	TRANSISTOR SILICON 2SC458LGC
Q115	5322248	TRANSISTOR 2SA1015Y
Q116	5320023	TRANSISTOR SILICON 2SC458LGC
COILS		
L101-102	5152048	COIL
L104	5152048	COIL
L106	5150526	COIL
MISCELLANEOUS		
DL101	5270273	DELAY LINE
DL102	5270274	DELAY LINE

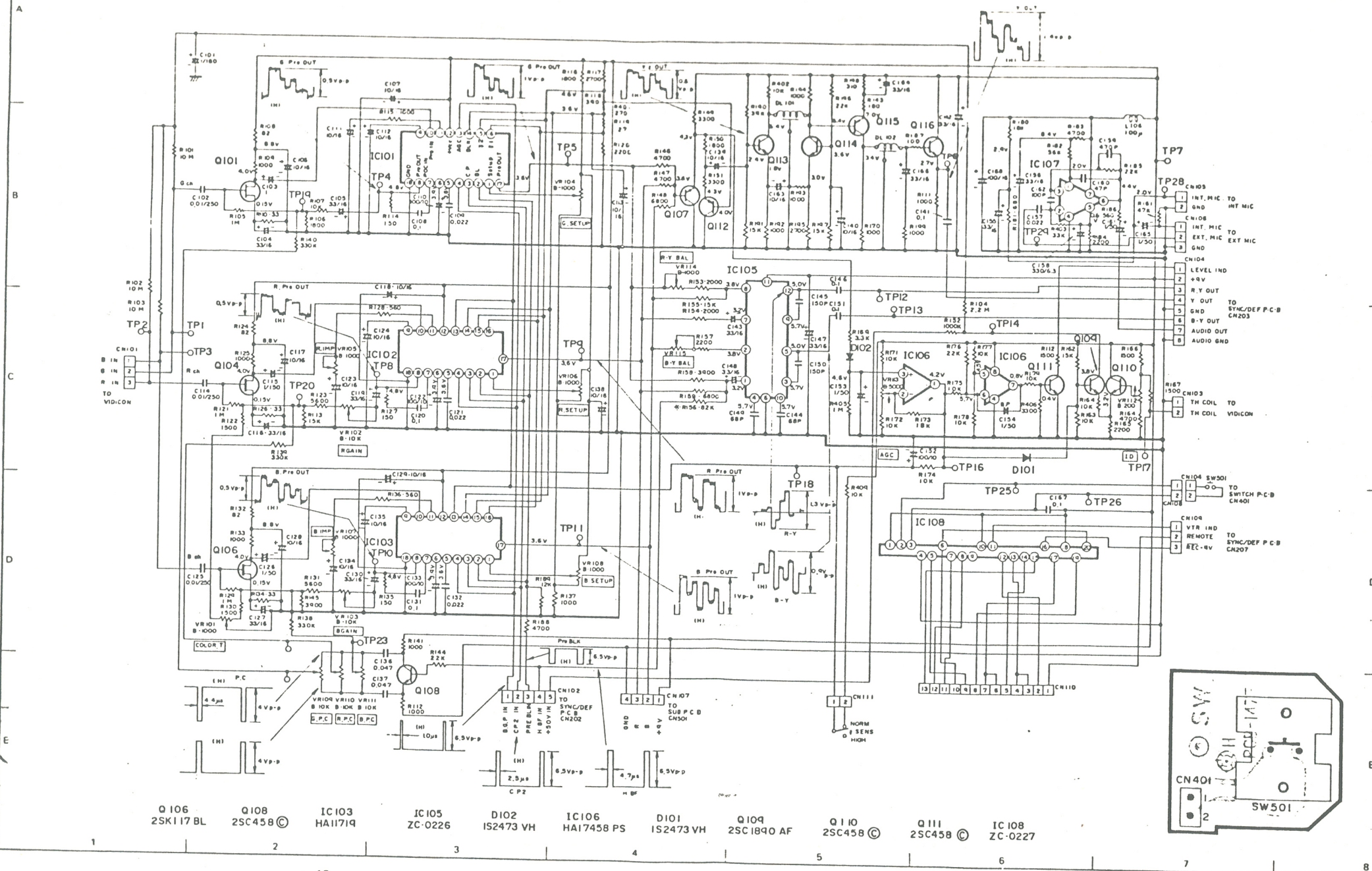
VIDEO SCHEMATIC DIAGRAM

Q101 25K117BL Q104 25K117BL IC101 HA11719 IC102 HA11719 Q112 25A1015 Q113 25C458 Q114 25C458 Q115 25A1015 Q116 25C458 IC107 TA7120



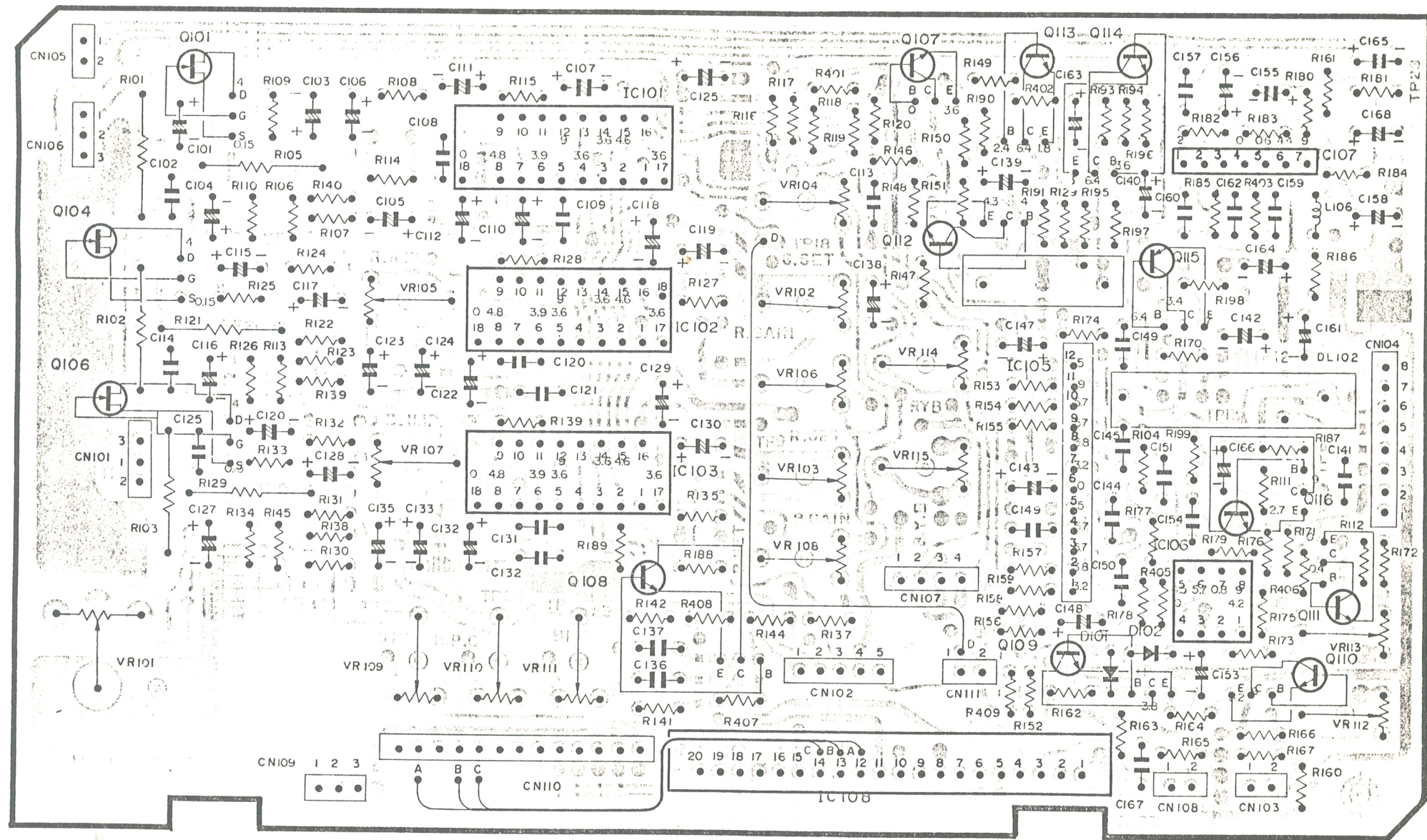
VIDEO SCHEMATIC DIAGRAM

Q101 2SK117BL Q104 2SK117BL IC101 HA1171Q IC102 HA1171Q Q112 2SA1015 Q113 2SC458 Q114 2SC458 Q115 2SA1015 Q116 2SC458 IC107 TA7120

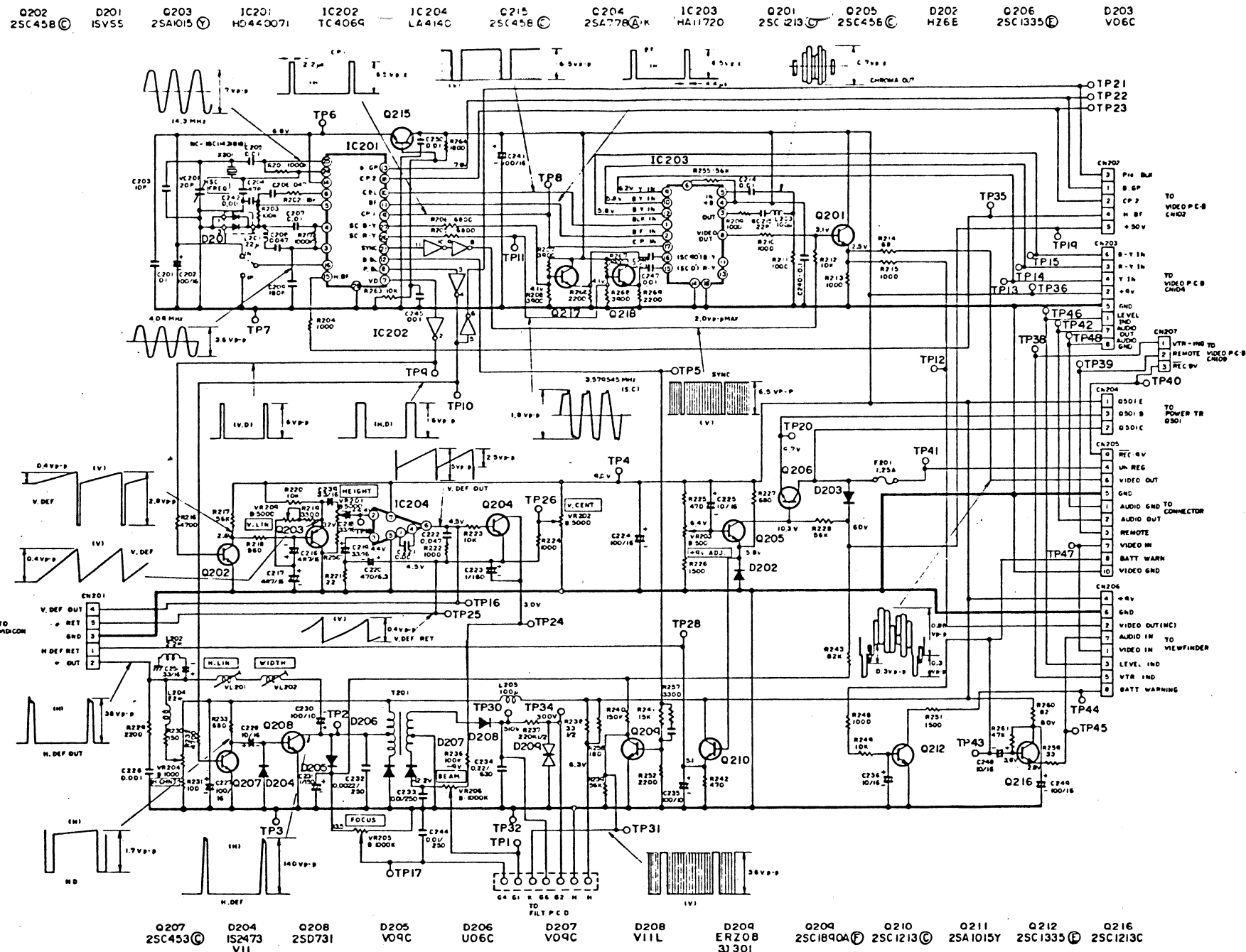


Q106 2SK117BL Q108 2SC458 IC103 HA1171Q IC105 ZC-0226 D102 IS2473 VH IC106 HA17458 PS D101 IS2473 VH Q109 2SC1890 AF Q110 2SC458 Q111 2SC458 IC108 ZC-0227

VIDEO CIRCUIT BOARD DIAGRAM

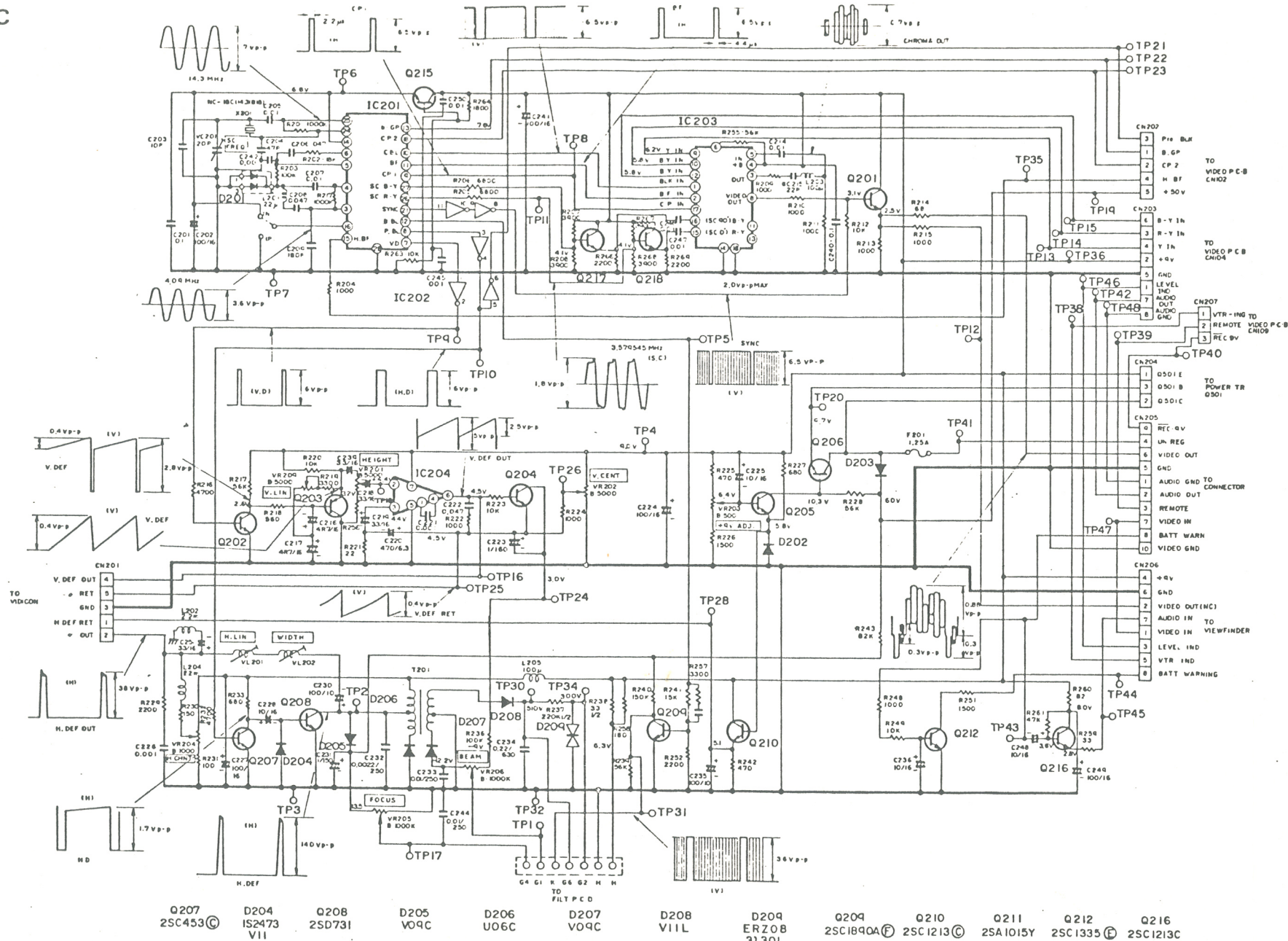


SYNC/ ENCODER SCHEMATIC DIAGRAM



SYNC/ ENCODER SCHEMATIC DIAGRAM

Q202 25C45B (C) D201 ISV55 Q203 25A1015 (V) IC201 HD440071 IC202 TC4069 IC204 LA4140 Q215 25C45B (C) Q204 25A778 (K) IC203 HA11720 Q201 25C1213 (C) Q205 25C45B (C) D202 HZ6E Q206 25C1335 (E) D203 VO6C

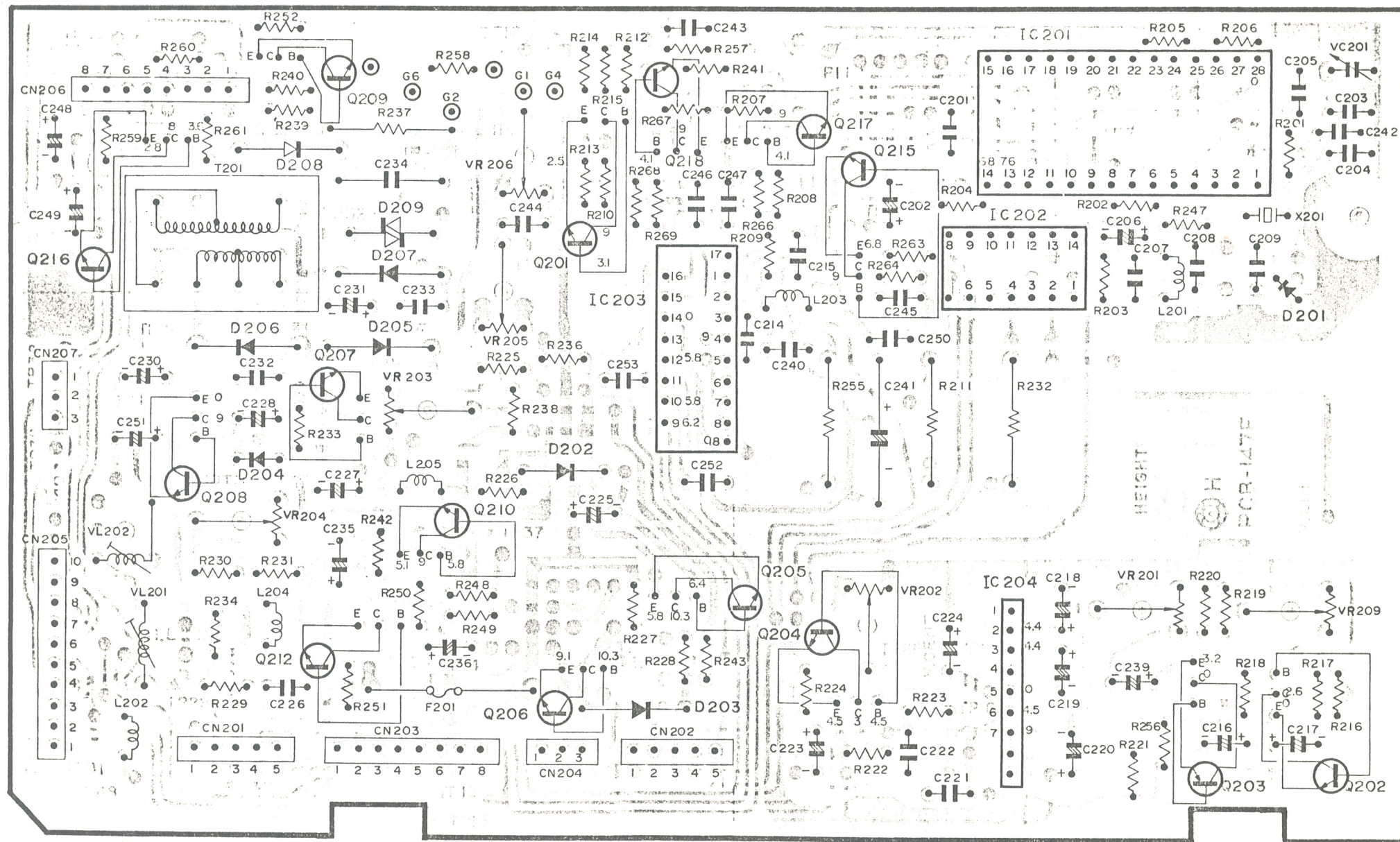


The diagram illustrates a complex electronic circuit, likely a radio receiver or amplifier, featuring several integrated circuits (IC201, IC202, IC203, IC204) and various passive components (resistors, capacitors, inductors). Key components include:

- Transistors:** Q201, Q202, Q203, Q204, Q205, Q206, Q207, Q208, Q209, Q210, Q212, Q215, Q216.
- Diodes:** D201, D202, D203, D204, D205, D206, D207, D208, D209.
- Capacitors:** C201, C202, C203, C204, C205, C206, C207, C208, C209, C210, C211, C212, C213, C214, C215, C216, C217, C218, C219, C220, C221, C222, C223, C224, C225, C226, C227, C228, C229, C230, C231, C232, C233, C234, C235, C236, C237, C238, C239, C240, C241, C242, C243, C244, C245, C246, C247, C248, C249, C250, C251, C252.
- Resistors:** R201, R202, R203, R204, R205, R206, R207, R208, R209, R210, R211, R212, R213, R214, R215, R216, R217, R218, R219, R220, R221, R222, R223, R224, R225, R226, R227, R228, R229, R230, R231, R232, R233, R234, R235, R236, R237, R238, R239, R240, R241, R242, R243, R244, R245, R246, R247, R248, R249, R250, R251, R252, R253, R254, R255, R256, R257, R258, R259, R260, R261, R262, R263, R264, R265, R266, R267, R268, R269.
- Inductors:** L201, L202, L203, L204, L205.
- Integrated Circuits:** IC201, IC202, IC203, IC204.
- Other Components:** VR201, VR202, VR203, VR204, VR205, VR206, X201, VC201, C201, C203, C204, C242, C243, C244, C245, C246, C247, C248, C249, C250, C251, C252.

The diagram includes a 'HEIGHT' label on the right side, indicating the physical dimensions of the components. The circuit is designed for a power supply of 1.5V and 1.5V, with a maximum current of 1.5A. The components are labeled with their respective values and pin numbers, and the diagram is a detailed representation of the physical layout of the circuit.

SYNC/ENCODER CIRCUIT BOARD DIAGRAM

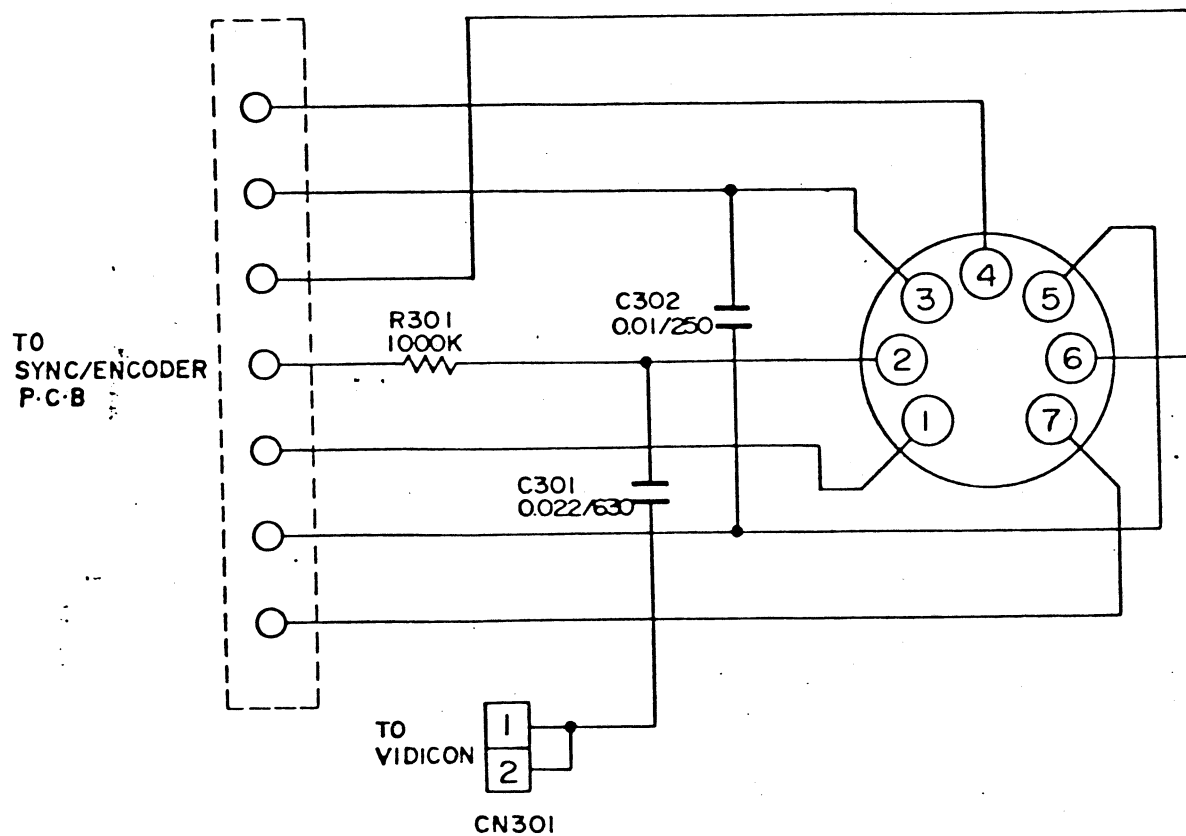


REPLACEMENT PARTS LIST (Sync/Encoder)

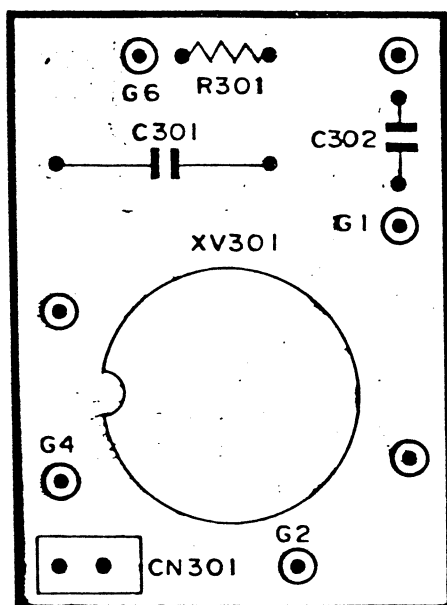
SYMBOL-NO	P-NO	DESCRIPTION
CAPACITORS		
VC201	5058291	TRIMMER CAPACITOR
RESISTORS		
VR201-202	5008438	VARIABLE RESISTOR 5K OHM
VR203	5007351	VARIABLE RESISTOR 500 OHM
VR204	5008436	VARIABLE RESISTOR 1K OHM
VR205-206	5008439	VARIABLE RESISTOR 1M OHM
VR207-208	5008435	VARIABLE RESISTOR 10K OHM
VR209	5008438	VARIABLE RESISTOR 5K OHM
SEMI-CONDUCTORS		
D201	5330771	DIODE SILICON 1SV55 10KHZ 250MW
D202	5330392	ZENER DIODE SILICON MZ68 1MHZ 400MW
D203	5330101	RECTIFIER SILICON V06C 15K
D204	5330573	DIODE SILICON 1S2473 300MHZ 300MW
D205	5330421	DIODE SILICON V09C 15K
D206	5330691	DIODE V06C
D207	5330421	DIODE SILICON V09C 15K
D208	5330492	DIODE V11L
D209	5340211	DIODE 37301
IC201	5351686	IC MD440071
IC202	5351687	IC TC4069UBP
IC203	5351688	IC HA11720
IC204	5351689	IC LA4140
Q201	5320613	TRANSISTOR SILICON 2SC1213C 80M
Q202	5320023	TRANSISTOR SILICON 2SC458LGC
Q203	5322248	TRANSISTOR 2SA1015Y

SYMBOL-NO	P-NO	DESCRIPTION
Q204	5322241	TRANSISTOR 2SA778AK
Q205	5320023	TRANSISTOR SILICON 2SC458LGC
Q206	5321032	TRANSISTOR 2SC1335E
Q207	5320023	TRANSISTOR SILICON 2SC458LGC
Q208	5322238	TRANSISTOR 2SD781
Q209	5322234	TRANSISTOR 2SC1890A-F
Q210	5320613	TRANSISTOR SILICON 2SC1213C 80M
Q211	5322248	TRANSISTOR 2SA1015Y
Q212	5320023	TRANSISTOR SILICON 2SC458LGC
Q215	5320023	TRANSISTOR SILICON 2SC458LGC
Q216	5320613	TRANSISTOR SILICON 2SC1213C 80M
Q217-218	5320023	TRANSISTOR SILICON 2SC458LGC
TRANSFORMERS		
T201	5270251	FLYBACK TRANSFORMER
COILS		
L201	5150611	COIL
L202	5150612	COIL
L203	5150526	COIL
L204	5150529	COIL
L205	5150528	COIL
CRYSTALS		
X201	5780474	CRYSTAL
MISCELLANEOUS		
F201	5721184	FUSE
VL201	5150614	COIL
VL202	5270262	COIL

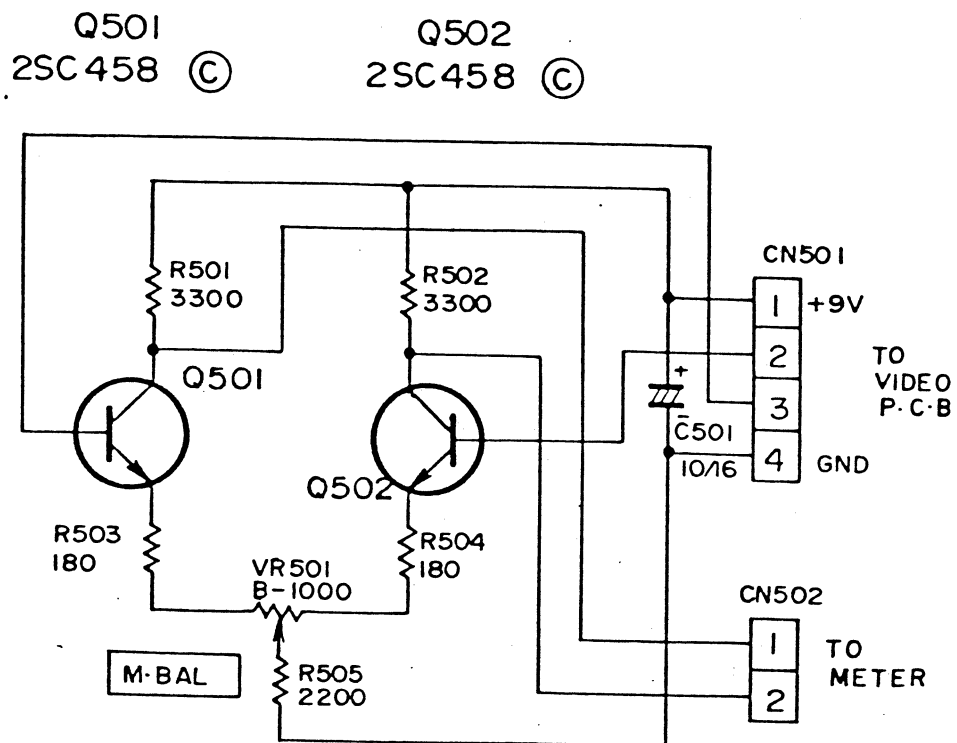
FILTER SCHEMATIC DIAGRAM



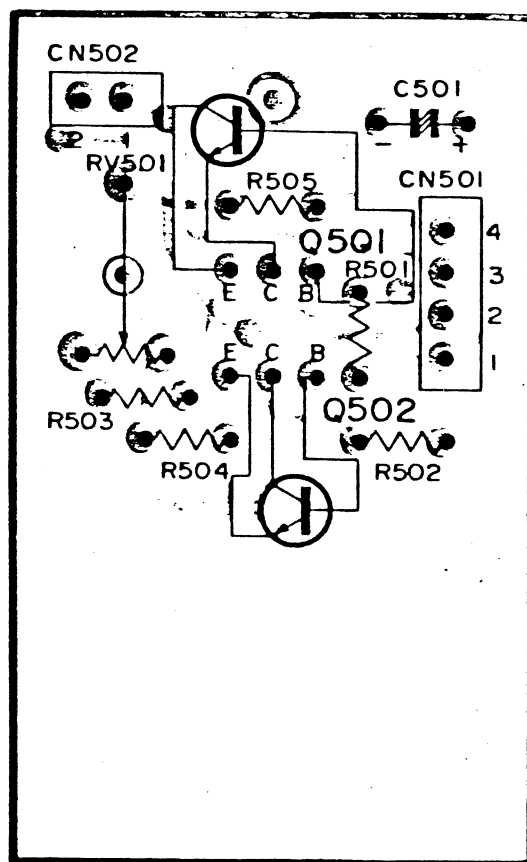
FILTER CIRCUIT BOARD DIAGRAM



SUB SCHEMATIC DIAGRAM



SUB CIRCUIT BOARD DIAGRAM



REPLACEMENT PARTS LIST (Filter)

SYMBOL-NO	P-NO	DESCRIPTION
FOR FINAL ASSEMBLY		
1	6103821	FRONT COVER ASSEMBLY
2	6103832	SIDE COVER (L)
3	6103842	SIDE COVER (R)
4	6223542	UNDER COVER ASSEMBLY
5	6223552	REAR PANEL
6	6288051	KNOB

SYMBOL-NO	P-NO	DESCRIPTION
7	6552941	BUTTON
8	6570311	MIC HOLDER
9	6589481	EYE CAP
10	6758721	GRIP ASSEMBLY
11	6759191	VIEWFINDER
12	6959451	ZOOM LENS
13	7677611	METER CUSHION

REPLACEMENT PARTS LIST (SUB)

SYMBOL-NO	P-NO	DESCRIPTION
RESISTORS		
VR501	5008436	VARIABLE RESISTOR 1K OHM

SYMBOL-NO	P-NO	DESCRIPTION
SEMI-CONDUCTORS		
Q501-502	5320023	TRANSISTOR SILICON 2SC458LGC

REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
MISCELLANEOUS		
	5621671	MICROPHONE
	5659274	VIDICON SOCKET
J501	5672061	MIC JACK
L501	5270268	COIL

SYMBOL-NO	P-NO	DESCRIPTION
M501	5553141	METER
Q501	5322249	TRANSISTOR 2SD880Y
SW501	5602066	SWITCH
SW502	5623201	SWITCH
V401	5310252	VIDICON

